

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method to produce a thin-layer lignocellulosic composite having increased resistance to moisture-induced shrinking or swelling comprising:

(a) forming a lignocellulosic composite mixture comprising at least one type of lignocellulosic fiber comprising a predetermined moisture content at least 5% by weight of an organic isocyanate resin, a release agent that does not interfere with subsequent processing of the thin-layer lignocellulosic composite ~~migrate to the surface of the thin layer lignocellulosic composite during pressing~~ and at least one type of wax;

(b) pre-pressing the mixture into a loose mat; and

(c) pressing the mat between two dies at an elevated temperature and pressure and for a sufficient time to further reduce the thickness of the mat to form a thin-layer composite having a thickness of between about 1 and about 5 mm, and to allow the isocyanate resin to interact with the lignocellulosic fiber such that the resultant thin-layer composite has a predetermined resistance to moisture, wherein the thin-layer lignocellulosic composite comprises a molded door skin, and wherein at least one surface of at least one die is coated with an anti-bonding agent.

2. (Original) The method of claim 1, wherein the lignocellulosic fiber comprises wood.

3. (Cancelled)

4. (Previously Amended) The method of claim 1, wherein the mixture comprises up to about 2% by weight of wax.

5. (Previously Amended) The method of claim 1, wherein the mixture comprises about 0.5% by weight of wax.

6. (Cancelled)

7. (Previously Amended) The method of claim 1, wherein the release agent comprises an emulsion of surfactants and polymers.

8. (Previously Amended) The method of claim 1, wherein the release agent is added directly to the mixture prior to pre-pressing the mixture into a loose mat.

9. (Original) The method of claim 8, wherein the amount of release agent added to the mixture ranges from about 0.5% to about 8% by weight.

10. (Previously Amended) The method of claim 1, further comprising spraying additional release agent onto at least one surface of the loose mat.

11. (Original) The method of claim 10, wherein the amount of release agent sprayed on to the mat surface comprises from about 0.1 to about 8.0 grams solids per square foot (1.1 to 86.1 grams per square meter) of mat surface.

12. (Previously Amended) The method of claim 1, wherein the release agent comprises a pigment.

13 - 14. (Cancelled)

15. (Presently Amended) The method of claim 1 [[13]], wherein the anti-bonding agent used to coat the die surface comprises silane or silicone.

16. (Presently Amended) The method of claim 1 [[14]], wherein the step of coating at least one die surface comprises baking the anti-bonding agent onto the die surface.

17. (Original) The method of claim 1, wherein the lignocellulosic mixture comprises about 80% to about 95% by weight fiber.

18. (Original) The method of claim 1, wherein the predetermined moisture content of the lignocellulosic fiber ranges from about 7% to about 20% moisture content by weight.

19. (Original) The method of claim 1 wherein the predetermined moisture content of the lignocellulosic fiber ranges from about 10% to about 14% moisture by weight.

20. (Original) The method of claim 1, wherein the isocyanate comprises diphenylmethane diisocyanate (MDI) or toluene diisocyanate (TDI).

21. (Original) The method of claim 20, wherein the isocyanate comprises diphenylmethane-4,4'-diisocyanate.

22. (Original) The method of claim 1, wherein the mixture comprises from about 6.5% to about 15% by weight resin solids.

23. (Original) The method of claim 1, wherein the mixture comprises about 10% by weight resin solids.

24. (Original) The method of claim 1, wherein the temperature used to press the mat into a thin layer ranges from about 250°F (121°C) to about 400°F (204°C).

25. (Original) The method of claim 1, wherein the temperature used to press the mat into a thin layer ranges from about 280°F (138°C) to about 350°F (177°C).

26. (Original) The method of claim 1, wherein the temperature used to press the mat into a thin layer ranges from about 310°F (154°C) to about 330°F (166°C).

27. (Original) The method of claim 1, wherein the pressure used to press the mat into a thin layer ranges from about 2500 psi (176 kg/cm²) to about 150 psi (10.5 kg/cm²).

28. (Original) The method of claim 1, wherein the pressure used to press the mat into a thin layer ranges from about 1200 psi (84.3 kg/cm²) for 5 to 20 seconds followed by 500 psi (35.16 kg/cm²) for 20 to 80 seconds.

29. (Previously Amended) The method of claim 1, wherein the thin-layer composite exhibits up to 50% less linear expansion and thickness swelling after being immersed for 24 hours in 70°F (21°C) water than thin-layer composite comprising a non-isocyanate based resin.

30. (Original) The method of claim 1, wherein the predetermined resistance to moisture comprises a thickness swelling of less than 15% after being immersed for 24 hours in water at 70°F (21°C).

31. (Presently Amended) A method to produce a thin-layer wood composite having increased water resistance comprising:

(a) forming a mixture comprising: (i) a refined wood fiber comprising a predetermined moisture content; (ii) a wax; (iii) at least 5% by weight of an organic isocyanate resin; and (iv) a release agent that does not interfere with subsequent processing of the thin-layer lignocellulosic composite ~~migrate to the surface of the thin-layer lignocellulosic composite during pressing~~;

(b) pre-pressing the mixture into a loose mat;

(c) pressing the mat between two dies at an elevated temperature and pressure and for a sufficient time to further reduce the thickness of the mat to between about 1 mm and about 5 mm to form a thin-layer composite and to allow the isocyanate resin to interact with the wood fiber such that the resultant thin-layer composite has a predetermined resistance to moisture, and wherein at least one of the die surfaces has been coated with an anti-bonding agent comprising silane or silicone, wherein the thin-layer wood composite comprises a molded door skin.

32 - 57. (Cancelled)